

REMARKS

Applicant acknowledges with appreciation the Examiner's indication that claims 81, 85, 89, 94, 9, 105, 108, 110, 112, 114, and 116 are allowable. Claims 113-115 and 117 are amended. Claims 1-112 are cancelled without prejudice to their underlying subject matter. New claims 118-123 are added, without adding new matter. A Request for Continued Examination is filed herewith. All arguments set forth herein are, and all prior arguments in any previous filing were, made without prejudice and Applicant's failure to address any specific point made in any Office Action should not be taken as an indication of agreement or a concession.

Applicant thanks the Examiner for the telephone interview on January 7, 2010, in which Applicant's counsel and the Examiner discussed the language of claims 113-117, specifically the term "diagonal" and its variants. The Examiner expressed his understanding of the term "diagonal" with respect to the pre-amended claim language (Office Action at 6-8), specifically that the use of "diagonal" as an adjective defines a mere direction and not a shape such that if an imager feature has a shape through which a diagonal line could be drawn in any way, this would satisfy the claimed feature. While the Applicant does not necessarily agree with this position, the claims are amended, in part, to define a diagonal shape for the recited "active area" with respect to other features of a pixel array.

Claims 93, 102, and 117 stand objected to for informalities. Claims 93 and 102 are cancelled. Claim 117 is amended in view of the examiner's concerns. The objection is respectfully requested to be withdrawn.

Claims 80, 84, 88, 93, 102-104, 106, 107, 109, 113, 115, and 117 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 6,977,684 ("Hashimoto"). Applicant respectfully traverses this rejection.

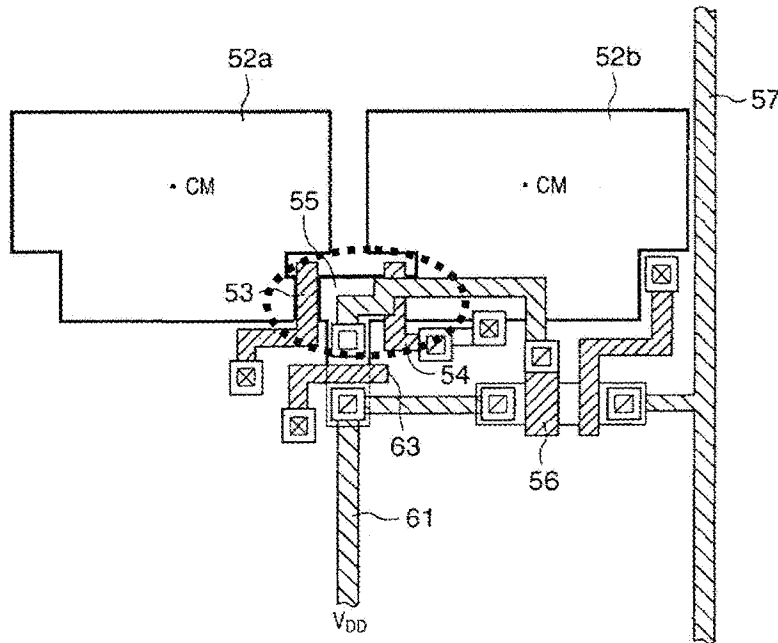
Claims 80, 84, 88, 93, 102-104, 106, 107, and 109 are cancelled without prejudice to their subject matter. Therefore, the rejection is moot as to these claims and it should be withdrawn.

Claim 113 defines an imager structure and recites “a pixel array having pixels arranged in rows and columns; said pixel array comprising a first pixel and a second pixel formed in respectively adjacent columns and in conjunction with an active area spanning a first associated photodetector of the first pixel and a second associated photodetector of the second pixel but no other photodetectors, said active area having the first associated photodetector and the second associated photodetector at opposite ends of said active and having a two-dimensional shape as the pixel array is viewed from above; and a common output for charges generated from the first photodetector and the second photodetector at a portion of said active area between said first and second photodetectors, the common output being coupled to a signal output line shared by the first pixel and the second pixel, wherein the two-dimensional shape of said active area between the first and second associated photodetectors is a substantially diagonal shape with respect to an extending direction of said column line within the pixel array.” Such a structure is not disclosed by Hashimoto.

Hashimoto at least fails to disclose an imager structure that has “an active area spanning a first associated photodetector of the first pixel and a second associated photodetector of the second pixel but no other photodetectors, said active area having the first associated photodetector and the second associated photodetector at opposite ends of said active and having a two-dimensional shape as the pixel array is viewed from above” and “wherein the two-dimensional shape of said active area between the first and second associated photodetectors is a substantially diagonal shape with respect to an extending direction of said column line within the pixel array,” as recited by independent claim 113. The Office Action (at 18) indicates that Hashimoto, at Figure 6, discloses two pixels with an active area spanning their photodetectors in anticipation of these claimed features.

Although it is not completely clear to what specific feature of Figure 6 the Office Action refers, it is assumed that the portion of the figure circled in the annotated Hashimoto Figure 6, reproduced below, is the relevant feature.

FIG. 6



The above-circled region in Hashimoto Figure 6 does not have a “a substantially diagonal shape with respect to an extending direction of said column line within the pixel array,” as recited by claim 113. Regardless of what conducting line the Office Action considers to be analogous to the recited “column line,” e.g., V_{DD} power supply line (61) or vertical signal line (57), it is clear that none have a diagonal relationship with the circled area in the figure above. In fact, no feature illustrated in Figure 6 of Hashimoto has a diagonal shape relative to any other feature. For at least this reason, independent claim 113 and each claim depending therefrom is patentable over Hashimoto.

Claim 115 defines a pixel array and recites “a first pixel and a second pixel, the first pixel having a first photodetector and the second pixel having a second photodetector, wherein the first photodetector shares an active area with the second photodetector and no other photodetector, said shared active area providing an output for said first and second photodetectors and having a two-dimensional shape as the pixel array is viewed from above; and a common readout line for receiving a signal from said first and second photodetectors coupled to the active area shared by the

first pixel and the second pixel, wherein the two-dimensional shape of the shared active area between the first and second photodetectors is a substantially diagonal shape relative to an extending direction of the common readout line across the pixel array.” Such a device is not anticipated by Hashimoto.

As with independent claim 113, Hashimoto does not anticipate claim 115 because the reference fails to disclose a diagonal shaped feature relative to any other feature in its pixel array portions. Hashimoto does not disclose a pixel array where a “two-dimensional shape of the shared active area between the first and second photodetectors is a substantially diagonal shape relative to an extending direction of the common readout line across the pixel array,” as recited by independent 115. Therefore, independent claim 115 and each dependent claim is patentable over Hashimoto.

Claim 117 defines a pixel array and recites “a first pixel and a second pixel, said first pixel having a first photodetector and said second pixel having a second photodetector, wherein said first photodetector shares an active area with said second photodetector and no other photodetector and at least one of said first pixel and said second pixel further comprises a reset transistor, said reset transistor comprising a gate, a first source/drain region, and a second source/drain region in a linear arrangement as viewed from above the pixel array, wherein said shared active area between the first and second photodetectors has a substantially diagonal shape relative to the linear arrangement of the reset transistor as the pixel array is viewed from above; and a common readout line for receiving charge from said shared active area.” Such a device is not disclosed by Hashimoto.

Like independent claims 113 and 115, discussed above, claim 117 is patentable over Hashimoto because the reference fails to disclose a diagonal active area feature. Hashimoto fails to disclose at least a “shared active area between the first and second photodetectors [with] a substantially diagonal shape relative to the linear arrangement of the reset transistor as the pixel array is viewed from above,” as recited by claim 117. Therefore, independent claim 117 and each claim depending therefrom is patentable over Hashimoto.

Because Hashimoto fails to disclose every feature recited by the claims, the reference does not anticipate and claims 113-123 are patentable over Hashimoto. Applicant respectfully requests that the 35 U.S.C. § 102(e) rejection of claims 113, 115, and 117 be withdrawn and that the claims be allowed.


Claim 111 stands rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 6,130,423 (“Brehmer”). Applicant respectfully traverses this rejection. Claim 111 has been cancelled, without prejudice. Therefore, the rejection is moot and should be withdrawn.

Claim 84, 97, and 98 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 5,721,422 (“Bird”). Applicant respectfully traverses this rejection. Claims 84, 97, and 98 have been cancelled, without prejudice. Therefore, the rejection is moot and should be withdrawn.

In view of the above, Applicant believes the pending application is in condition for allowance. A notice of allowance for all pending claims is respectfully requested.

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Respectfully submitted,

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